

## BOROSILICATE WETTING ON CERAMIC MATRIX COMPOSITES AND SI-BASED SUBSTRATES

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The oxidation of Ceramic Matrix Composites (CMCs) is a complex process due to the combined oxidation of ceramic fibers, matrix, and an interphase. In previous work, the oxidation of CVD SiC coated SiC/BN/SiC CMCs with a single uncoated face exposing the fibers, matrix, and interphase was studied at temperatures of 800, 1200, and 1300°C. The thermal oxidation of the exposed face was characterized to understand crack-sealing in CMCs during use. During thermal oxidation, the exposed face of the CMC was sealed by borosilicate glass formation. Oxide droplets were observed to form at BN/SiC interfaces. In this work, stand-alone borosilicate glass cylinders situated on SiC, Si, or SiO<sub>2</sub> substrates were heated in air and visualized *in situ* using a heating microscope. Changes in oxide morphology, volatility, and wetting were characterized as a function of borosilicate and substrate composition. Results from stand-alone glasses were compared with the observations from exposed CMC faces to elucidate mechanisms of composite sealing during thermal oxidation.